WEST Search History

DATE: Thursday, September 04, 2003

Set Name	Query	Hit Count	Set Name
side by side			**result set**
DB=USPT; PLUR=YES; OP=ADJ			
L13	(El-Hady or ELHADY).XP.	35	L13
L12	L11 and l5	2	L12
L11	((transfer or transferring) near5 (data or information)).ti.	2770	L11
L10	L9 and l5	0	L10
L9	(multicast or multicasting or broadcast or broadcasting).ti.	1999	L9
L8	(multicast or multicasting or broadcast or broadcasting).ti.	201	L8
L7	(multicast or multicasting).ti.	295	L7
L6	L5 and (multicast or multicasting).ti.	0	L6
L5	(El-Hady or ELHADY).XA.	141	L5
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L4	(El-Hady or ELHADY).XA.	2	L4
L3	L2 and (email or E-mail or (electronic adj4 mail))	2	L3
L2	L1 and @AD<20000307	76	L2
L1	(download or downloading or transfer or transferring) near8 (driver or software) near8 (printer adj4 printer)	129	L1

END OF SEARCH HISTORY

WEST Search History

DATE: Thursday, September 04, 2003

Set Name side by side	**Query**	**Hit Count**	**Set Name** result set
	DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ		
L3	L2 and (email or E-mail or (electronic adj4 mail))	2	L3
L2	L1 and @AD<20000307	76	L2
L1	(download or downloading or transfer or transferring) near8 (driver or software) near8 (printer adj4 printer)	129	L1

END OF SEARCH HISTORY

WEST

L5: Entry 1 of 77   File: PGPB   Jul 24, 2003

DOCUMENT-IDENTIFIER: US 20030137688 A1
TITLE: REMOTE PLUG-AND-PLAY FOR HOME PRINTER VIA CABLE NETWORK

Application Filing Date (1):
19990720

Summary of Invention Paragraph (5):
[0004] In addition to the widespread use of personal computers in the home which are
capable of connecting over the internet, there is a growing use of devices in the home
known as set top boxes for connecting a common television to a digital cable network.
Typically, the digital cable network comprises a digital broadband network which
incorporates digital and analog services such as analog television signal broadcasts
and digital television signal broadcasts, analog and digital pay-per-view services,
digital real video on demand, and also one and two way real time data communication.
Such digital cable networks can also provide services such as web browsing and e-mail
by providing access to the internet through a proxy which is located between the
internet and the digital cable network. The typical digital cable network has a cable
head end which collects the value added services to be distributed over the digital
cable network such as television stations, pay-per-view television stations, video on
demand, web browsing and e-mail. The cable head end also implements the network control
systems which handle the distribution and control of the aforementioned services over
the digital cable network. A cable head end on a typical digital cable network may
provide services for one-half to one million homes by distribution over the digital
cable network via numerous hubs, each of which provides service to approximately 500 to
2,000 homes.

Summary of Invention Paragraph (6):
[0005] A set top box within a home generally communicates with the cable head end by
means of a client/server relationship. The STB (set top box) hosts various applications
that present the user with the functionality offered by the various cable services. The
more familiar applications provided over such digital cable networks, typically include
a navigator, an interactive program guide, e-mail, and a web browser. In such
applications, the STB hosts the client software and the cable head end hosts the server
software. The set top box itself may be one of many currently available set top boxes,
such as the Explorer 2000 by Scientific Atlanta, the DCT 5000+ by General Instrument,
and the Streammaster by Motorola and others.

Summary of Invention Paragraph (7):
[0006] The set top box therefore provides a way for the user to obtain numerous
television channels, videos, e-mail, internet access, and other services, for viewing
on the user's television which is connected to the set top box. It can be appreciated
that the user may, in addition to viewing such services, also want to print some of the
content provided from the aforementioned services by means of a printer locally
attached to the set top box. Unfortunately, set top boxes are not currently known to
provide the capability to support a local printer. Set top boxes are generally designed
so as to provide the aforementioned services in a user-friendly manner such that the
user is not required to possess a high degree of technical competency or knowledge. For
this reason, even if a set top box could support a printer, installation of the printer
to the set top box should be provided in a user-friendly manner.

Detail Description Paragraph (13):
[0038] Whatever client/server arrangement is used, the client and servers communicate
over a CPSI transport layer that facilitates communication from CPSI client 16. In
general, data is pushed in one direction from CPSI client, with little or no data
(other than acknowledgements and the like) returning in the other direction toward CPSI
client 16. The actual CPSI transport may use TCP/IP, SMTP, or the like. The sessions
may be secure. The CPSI transport layer is configured to hide any differences in the

actual transport from CPSI client 16, so that the actual transport is transparent from the viewpoint of CPSI client 16, thereby making CPSI client 16 transport-independent.

Detail Description Paragraph (15):
[0040] Besides address information, preference directory 21 also stores other information relating to subscriber preferences. Such information is set initially by the subscriber, during a registration process, and may thereafter be modified as desired. One such preference is a blocking feature, whereby a subscriber can block printing jobs that are received from particular merchants, or can accept print jobs only if they are received from particular merchants. Another such preference involves selection and configuration of an automatic data/information delivery service. According to this delivery service, and based on subscriber preferences, CHE 6 periodically executes a data gathering application (like application 22) that gathers information from internet sources (such as news, coupons, theater schedules and the like), packages the information into a print job, and sends the print job to the subscriber's set top box.

Detail Description Paragraph (18):
[0043] Although FIG. 2 illustrates an IPP client/server communication between CHE 6 and STB 10, other protocols may also be used. For example, in a situation where the resources available in STB 10 are already strained, it is possible to use SMTP and POP mail protocols to deliver print jobs from CHE 6 to STB 10. Advantages of such an arrangement include the fact that many conventional STB's already include mail protocols, thereby avoiding a further increase in STB resource usage, firewalls that might exist in CHE 6 will allow mail to go through, multiple mailboxes can be defined in each household, and mail clients (at the client modules) can easily be configured to support print jobs. In the latter situation, CHE 6 and corresponding client modules 14 are also configured for communication via a mail protocol client/server relation, such as an SMTP client/server. Similarly, other protocols can be used between CHE 6 and respective STB 10's, and multiple protocols can be used in parallel or in stacked arrangements.

Detail Description Paragraph (19):
[0044] STB 10 includes CPSI server 39, and further includes CPSI spooler 26, which controls a single queue for a single logical printer corresponding to printer 12. Otherwise, CPSI spooler 26 is nearly identical to CPSI spooler 20, as are CPSI server 39 and CPSI server 37. The limited functionalities of CPSI spooler 26 and CPSI server 39 are advantageous because STB 10 is likely to have limited computing resources. STB 10 also includes STB client application 27, which communicates to CPSI spooler 26 through CPSI client 29, using a subset of the API used by client application 15. This configuration allows an STB user to initiate local print jobs.

Detail Description Paragraph (21):
[0046] Through the software architecture illustrated in FIG. 3, STB 10 hosts various applications that present to the home user functionality offered by various cable services. Typical applications are a navigator, an interactive program guide, electronic mail and a web browser. Most of these applications are client/server implementations, where STB 10 hosts the client software, and CHE 6 hosts the server software. Communication between client and server over the cable network is facilitated by an operating system executed on STB 10, and is performed through published API's. Depending on the hardware platform and the operating system, those applications may be resident at STB 10, or can be downloaded from servers situated at CHE 6 for execution at STB 10.

Detail Description Paragraph (24):
[0049] Applications 35 and 36 include a web browser, an e-mail program, a print driver for attached printer 12, and the like. Of particular note, these applications include the aforementioned applications from FIG. 2, namely IPP server 25, CPSI spooler 26, CPSI client 29, and STB client applications 27.

Detail Description Paragraph (27):
[0052] FIG. 4 shows the overall data flow of a print job from client module 14 such as a remote merchant or a client application executing at CHE 6, through to its final delivery to printer 12 at the home of the STB user. As shown in FIG. 4, client application 15 executing in client module 14 generates a print job addressed to one or more printers at one or more STBs. The print job is generated in a high level page description language (PDL) such as PostScript, PDF, HTML, or the like. High level printer languages such as these PDLs are preferred, since they are printer independent, thereby freeing the client application from a need for any knowledge of the

configuration of the destination printer 12. The print job in PDL format is delivered over the aforementioned CPSI client 16 from the client module 14 out through to CHE 6 where it is eventually accepted by CPSI spooler 20. At CPSI spooler 20, the print job is rasterized based on knowledge of the configuration and type of destination printer 12, which in turn-is obtained by CPSI spooler from preferences directory 21 based on the destination printer address provided by the client module. The rasterized print job is delivered over the aforementioned client/server relationship between CHE 6 and STB 10, where the rasterized print job is eventually accepted by CPSI spooler 26 at STB 10. From there, the rasterized print job is delivered to target printer 12 for printout thereby.

Detail Description Paragraph (28):
[0053] FIG. 5 is a flow chart which illustrates this process in further detail. The process steps shown in FIG. 5 are stored on a computer readable medium such as an unshown memory at CHE 6 (for those steps performed by cable head end 6) or an unshown memory at STB 10 (for those process steps executed by set top box 10). Briefly, according to the process steps shown in FIG. 5, to print a print job received by a cable head end on a printer connected to a set top box that communicates with the cable head end over a high speed data communication network, the print job is received by the cable head end in a high level printer description language addressed to one or more such printers. Based on the address, the cable head end obtains a software driver for the printer, the software driver corresponding to configuration and type of the addressed printer. A logical printer is created in the cable head end (if a logical printer does not already exist), the logical printer corresponding to the software driver, and the logical printer is executed so as to rasterize the high level printer description language print job into a rasterized bit map image format. The rasterized bit map image format is transmitted over the high speed data communication network to the set top box addressed in the print job. At the set top box, the set top box creates a logical printer corresponding to its locally connected printer (if a logical printer does not already exist), with the logical printer accepting as its input the rasterized bit map image data. The rasterized bit map image data is sent to the set top box's logical printer, which in turn routes the print job to the locally connected printer.

Detail Description Paragraph (31):
[0056] In step S502, and based on the printer addresses received with the print job, CHE 6 accesses preferences directory 21 so as to retrieve user profiles for the users corresponding to the printers to which the print job is ultimately destined. User profiles preferably include at least an identification of printer configuration and type of printer 12 connected to the user's set top box. Other information may also be included in the user preference. One such piece of information is a blocking filter, which specifies filtering applied to the print jobs, thereby to permit a user to exclude unwanted print jobs. For example, so as to avoid a proliferation of unwanted print jobs at his home printer, a user may specify preferences instructing cable head end 6 to block print jobs from specific sources, or to allow print jobs only from specific sources. Any such preferences are applied in step S503 in which CHE 6 determines whether or not to reject the print job. If the job is rejected, flow branches to step S504 so as to reject the job and, possibly, to inform client module 14 that the job has been rejected.

Detail Description Paragraph (32):
[0057] If the print job is accepted for printout, flow advances to step S506 in which the print job is scheduled and deposited in the subscriber's queue, and the step S507 in which the cable head end determines whether a print driver exists for the printer to which the print job is destined. A print driver might not exist for a variety of reasons. One such reason is that the cable head end does not have available a software module corresponding to the printer defined in the user profile. In such a circumstance, cable head end 6 simply accesses an internet provider of such a software driver, such as an internet site corresponding to the printer manufacturer. One more common situation in which a driver might not exist, however, is a situation in which the user profile does not contain any identification of printer configuration or type. Such a situation is addressed in steps S509 and S510, to which CHE 6 branches in a situation where a driver does not exist for failure of the user profile to specify a printer.

Detail Description Paragraph (33):
[0058] Thus, in step S509, CHE 6 communicates directly (via CPSI spooler 20, CPSI client 38, and IPP client/server 24 and 25) to the destination STB 10, with a request for STB 10 to provide an identification of configuration and type for printer 12 connected to STB 10. STB 10 responds with the needed information, which is obtained by

CHE 6. In step S510, CHE 6 loads the driver corresponding to the identification
information provided from STB 10, and in addition updates the user profile in
preferences directory 21, so that future print jobs can be performed more readily,
without the need for communication with STB 10 for the purpose of determining printer
identification.

Detail Description Paragraph (34):
[0059] In any event, once a driver exists, flow advances to steps S511 and S512, in
which CPSI spooler 20 in CHE 6 determines whether a logical printer corresponding to
the print driver already exists, or if one needs to be created. A logical printer will
already exist if a prior print job has already been processed. Using the logical
printer, CPSI spooler feeds the print job in the printer-independent PDL format to the
logical printer, such that the logical printer rasterizes the print job into a
printer-specific rasterized bit map image (step S514). It should be understood that the
rasterized bit map image print job is not simply a fully bit map raster of the print
job. Rather, the rasterized bit map print job is a bit-by-bit representation of the
print job tailored specifically for the printer corresponding to the logical printer in
CPSI spooler 20. As one example of printer-specific rasterization, many printers
require print commands embedded in the print job, so as to enable control over the
printer. Examples of such print commands include start-of-page, advances-down,
eject-page, load-new-page, and the like. Such printer-specific commands are embedded in
the rasterized print job. As a further example, some printers, such a bubble jet
printers, print in bands, and embedded commands are needed so as to define such bands.
As yet a further example, some bubble jet printers that print in color require print
data to be supplied out of sequence for each different color, so as to accommodate
physical differences in location between printing jets for one color relative to
printing jets for another color. Whatever the source of printer specificity, the
rasterized bit map print job created by the logical printer in step S514 is
printer-specific, tailored directly based on the identity of printer configuration and
type of printer 12.

Detail Description Paragraph (36):
[0061] At the set top box, step S516 receives the rasterized bit map print job in CPSI
server 39 and forwards it to CPSI spooler 26. If a logical printer does not already
exist in CPSI spooler 26, then a logical printer is created based on the identity of
printer type and configuration for attached printer 12 (steps S517 and S519). In step
S520, CPSI spooler, using the logical printer, executes the rasterized bit map print
job so as to send the print job to printer 12 where it is rendered into a visible
printed image.

Detail Description Paragraph (47):
[0072] FIG. 6C shows multicast printing in which a remote web server generates a print
job having multiple destination printers. The print job is routed to the cable head end
via the internet, which thereupon routes the print job, in a multicast or broadcast
configuration, over the digital cable network to multiple different set top boxes for
printout by respective printers attached thereto.

Detail Description Paragraph (49):
[0074] On the other hand, if the job has not been rejected, flow advances to step S706,
in which, based on destination information included with the print job, the cable head
end determines the destination address or addresses for the print job. Steps S707 and
S709 create logical printers if they are needed. That is, if a corresponding logical
printer or printers do not already exist in spooler 20, the needed logical printer or
printers are created in CPSI spooler 20 (FIG. 2), with a separate logical printer being
created for each different printer needed to accomplish the unicast or multicast
printing. That is, in a unicast mode, since only a single printer is involved, then
only a single logical printer corresponding to the printer in question is created. On
the other hand, in a multicast or broadcast mode, multiple users and multiple printers
are the destination for the print job. It is possible, however, for several of the
multiple users to employ the exact same printer and printer configuration. As a
consequence, although it is likely that multiple logical printers are created in the
CPSI spooler at the cable head end, it is equally likely that a single logical printer
will be able to support several users because each of the several users will have
exactly the same printer type and configuration.

Detail Description Paragraph (71):
[0096] The configurations described above for the present invention are provided to
allow printing from client module 14 to STB 10 via CHE 6, wherein the print data is
formatted for printing on printer 12 either at CHE 6 by CPSI spooler 20 or at the

client application 15 of client module 14. In those <u>configurations,</u> the print data is generally provided to STB 10 in a rasterized format required for printing directly to printer 12 without the need for utilizing a printer driver in STB 10. The utilization of a printer driver in STB 10 is necessary, however, when a user of STB 10 wishes to print locally, such as when printing a web page that the user is viewing on the television to which STB 10 is attached. A printer driver in STB 10 would also be necessary in instances when print data is provided from CHE 6 to STB 10 in a device-independent format. In such situations, and in others not discussed herein, an appropriate printer driver corresponding to printer 12 needs to be provided for use in STB 10.

Detail Description Paragraph (76):
[0101] In step S1306, CHE application 22 obtains a printer driver that is appropriate for the manufacturer and model of printer 12 and for the hardware type and operating system of STB 10. CHE application 22 may obtain this printer driver from one of many sources. For example, the needed printer driver may already be stored in a memory of CHE 6 and accessible via preferences directory 21 for another subscriber on the digital cable network. In the alternative, CHE 6 may have several printer drivers available in a memory device such as a hard drive, CDROM, or the like. In another alternative, CHE application 22 may utilize internet proxy 5 to access world wide web 4 so as to obtain the necessary printer driver for STB 10, such as from the printer manufacturer's web site. Once the appropriate printer driver is found by CHE application 22, CHE application 22 then sends the printer driver to STB 10 via the digital cable network (step S1307). As mentioned previously, any of the available transport protocols for communication between CHE 6 and STB 10 may be utilized to <u>download the printer driver</u> from CHE 6 to STB 10. Once STB 10 receives the printer driver, STB 10 loads the printer driver in local memory for subsequent use and registers the printer driver with operating system 32 of STB 10 for future reference (step S1308).

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DOCUMENT-IDENTIFIER: US 5960167 A
TITLE: Printer configuration system

Application Filing Date (1):
19971204

Detailed Description Text (3):
Referring now to the drawings and in particular to FIG. 1, an exemplary multimedia device information system or network 2 including work station 4 enables users to communicate in a transparent and device independent manner. Multimedia system 2 can be implemented using a variety of hardware platforms and includes devices for input including scanner or Digital Copier 5, keyboard 6, pointing device or mouse 7, microphone 8, and video camera 9. The system further has devices for output including display terminal 10, printer 11, and speakers 12. Input/output (I/O) devices include facsimile 13, file server 14, and telephone 15. Server 14 is configured central to or remote from work station 4 with public, shared and/or private data storage that is differentiated by user access rights. The server 14 includes relational database system 17, network administration system 18, mail system 19 (e.g. email, voice mail) and data storage and retrieval system 20, and can be physically configured using optical drives, hard drives, floppy drives and/or tape drives. The relational database system 17 provides systems with fast query and retrieval of data.

Detailed Description Text (10):
(5) The auto install utility creates Novell Distributed Print Service ("NDPS" is abbreviation used by Novell in referring to a network printing control package) objects in the PSM. In particular, if a PSM exists, a new printer agent (e.g. "XPRINT.sub.--<SAP-ID.sub.-- PA") will be added. It should appear that an "agent" functions cooperatively with the Novell service referred to as the SRS for making information regarding components on a Netware based network system available to clients accessing such system. If a PSM does not exist, then the same will be created in conjunction with a printer agent. The generated printer agent serves as both the agent seen by a client as well as the destination to which jobs are submitted. Preferably, the agent is populated with PDS exec and PH exec OID values. In practice, the printer agent is "downed" and brought back up. Upon bringing the printer agent up, the PDS and PH are functional. Additionally, the driver of the printer is set in the printer agent and automatic download of drivers is enabled.

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L2: Entry 46 of 76   File: USPT   Dec 3, 1996

DOCUMENT-IDENTIFIER: US 5580177 A
TITLE: Printer/client network with centrally updated printer drivers and printer status monitoring

Application Filing Date (1):
19940329

CLAIMS:

2. The network as recited in claim 1 wherein said processor means enables assignment of a different printer type other than said one type to said requesting client processor and, upon determining an absence of a printer driver procedure for said different printer type in said requesting client processor, downloading to said requesting client processor from said library, a most updated printer driver procedure for said different printer type.

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DOCUMENT-IDENTIFIER: US 6606669 B1
TITLE: Information processing apparatus having automatic OS selecting function

Application Filing Date (1):
19951205

Drawing Description Text (3):
FIG. 2 is a block diagram for explaining a transfer of a printer driver in a printer in FIG. 1;

Drawing Description Text (5):
FIG. 4 is a flowchart showing a transfer processing procedure for the printer driver in the printer in FIG. 1;

Detailed Description Text (24):
In the invention, the OS which controls the host computer to which the printer is connected is specified through the bidirectional interface 21 and the printer driver for the OS can be transferred by an instruction of the OS. When transferring the printer driver, it is also possible that the printer driver is once read into the RAM 19 on the printer and is transferred. The printer driver can be directly transferred from the ROM 13 or external memory 14 to the input section 18 if it is possible.